Ch. 5 Review

1. The odds against passing your driving test on the first try are 4:13.

    a) Determine the odds in favour of passing on the first try.

    b) Determine the probability of passing on the first try.

2. A card is drawn from a standard 52 card deck. Calculate the following:

    a) The probability of choosing a Queen.

    b) The odds in favour of choosing a Queen.

    c) The odds against choosing a Queen.

3. In the game of poker, players are dealt 5 cards from a well-shuffled standard deck of 52 playing cards. Determine the probability that a player is dealt:

    a) all hearts.

    b) all kings.

4. The letters in the word BELUGA are scrambled.   What is the probability of unscrambling it correctly with a blindfold on?
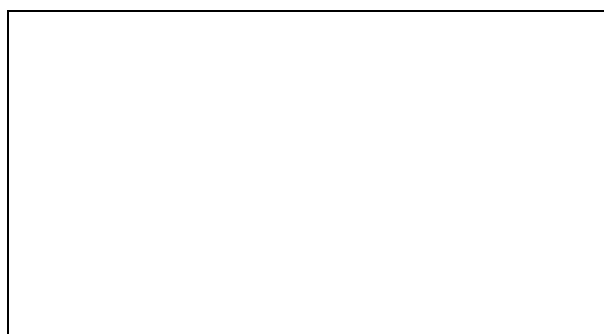
5. Describe a pair of events that can be classified by each of the following descriptions:
    a) Mutually exclusive.

    b) Dependent.

    c) Independent.

6. A card is drawn from a standard 52 card deck. Calculate the probability of:

    a) Drawing an ace or a face card.

    b) Drawing a heart or a King.

7. Carlos surveyed 100 students about their favourite music.   50 students like pop (set P), 45 students liked rock (set R), and 20 students didn't like pop or rock.

    a) Draw a Venn diagram of these sets.

    b) Determine the following:
        P(P∩R) =   P(P∪R) =   P(P\R) =

8. Enzo rolls two standard dice. Determine the probability of each event.

	1	2	3	4	5	6
1	(1,1)	(1,2)	(1,3)	(1,4)	(1,5)	(1,6)
2	(2,1)	(2,2)	(2,3)	(2,4)	(2,5)	(2,6)
3	(3,1)	(3,2)	(3,3)	(3,4)	(3,5)	(3,6)
4	(4,1)	(4,2)	(4,3)	(4,4)	(4,5)	(4,6)
5	(5,1)	(5,2)	(5,3)	(5,4)	(5,5)	(5,6)
6	(6,1)	(6,2)	(6,3)	(6,4)	(6,5)	(6,6)

a) The sum is 3 or 12.

b) The sum is even or greater than 7.

c) The first die is less than 3 or the second die is greater than 5.

9. A bag has 5 red marbles, 3 blue marbles and 1 green marble. If two marbles are randomly chosen, what is the probability of choosing:

a) Two red marbles?

b) One blue and one green marble?

10. A Euchre game consists of the 9, 10, jack, queen, king and ace of all four suits. This results in a Euchre deck of 24 cards. Audrey draws two cards from a well-shuffled Euchre deck. Determine the probability that both cards are queens:

a) If the first card drawn is replaced.

b) If the first card drawn is not replaced.

11. Josh has 5 loonies, 4 toonies and 3 quarters in his pocket. He reaches into his pocket and pulls out two coins at random. Determine the probability that both coins are quarters.

12. Cellphone users in Mapletown were surveyed about their phone plans, with these results:
   - 40% of all users have a data plan
   - 70% of all users have call display

A cellphone user in Mapletown, who is selected at random, has call display. Determine the probability that this person also has a data plan. (ie. What is the probability the person has a data plan, given that they have call display.)

Answers: 1a) 13:4 b) $\dfrac{13}{17}$ 2a) $\dfrac{4}{52} = \dfrac{1}{13}$ b) 4:48 c) 48:4   3a) $\dfrac{1287}{2598960}$ b) $\dfrac{48}{2598960}$ 4. $\dfrac{1}{720}$

5a) two events that have no outcomes in common (e.g. choosing a king or a queen from a deck)

5b) 2nd outcome depends on the 1st (changes probability)   (e.g. not replacing a card)

5c) Each event is separate, 2nd outcome does not depend on 1st (e.g. Rolling doubles on a die)

6a) $\dfrac{16}{52}$ b) $\dfrac{16}{52}$ 7a) $\dfrac{15}{100}$ b) $\dfrac{80}{100}$ c) $\dfrac{35}{100}$ 8a) $\dfrac{3}{36}$ b) $\dfrac{24}{36}$ c) $\dfrac{16}{36}$ 9a) $\dfrac{20}{72}$ b) $\dfrac{3}{72}$ 10a) $\dfrac{16}{576}$ b) $\dfrac{12}{552}$ 11) $\dfrac{6}{132}$ 12) 0.40 = 40%